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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,402	02/11/2005	Roelf Van Der Wal	NL 020764	4844

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EXAMINER

KARIMI, PEGEMAN

ART UNIT	PAPER NUMBER
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2609

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,402

Applicant(s)

VAN DER WAL ET AL.

Examiner

Pegeman Karimi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Feb/11/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/17/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The use of phrase "as claimed in claim 1", in Page 1, line 28;
"as claimed in claim 7", in page 2, line 1; "as claimed in claim 8", in page 2, line 2;
"as defined in claim 2", in page 3, line 26; "as defined in claim 4", in page 4, line 6;
"as defined in claim 6", in page 4, line 8; of the specification should be avoided because the claims may be cancelled or amended.

Drawings

4. The drawing (Fig. 1) is objected to under 37 CFR 1.83(a) because they fail to show labels in the rectangular boxes as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures

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appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuribayashi (U.S. Patent 6,016,037).

As to claims 1 and 8, Kuribayashi discloses a driver circuit (Fig. 11A) for driving an electroluminescent display (EL CELL) comprising a matrix of display pixels (REL,

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GEL, BEL) being associated with intersections of data electrodes ($I_1, I_2, etc.$) and select electrodes ($S_1, S_2, etc.$), (col. 3, lines 53-54),

the driver circuit comprises:

a select driver (Scanning Electrode Driver) for supplying a select signal ($S_1, S_2, etc.$) comprising non-overlapping select pulses ($S_1, S_2, etc.$, Fig. 6) with a predetermined repetition frequency to a selected one of the select electrodes during a select period (col. 4, lines 44-47),

a data driver (Signal Electrode Driver) for supplying data signals (DM, col. 6, lines 6-11) to the data electrodes ($I_1, I_2, etc.$),

the data signals (I_1 and I_2 , Fig. 6) comprising data pulses with the same predetermined repetition frequency (Fig. 6),

the data pulses (First positive amplitude in light emission of I_2 , Fig. 6) occurring during the select pulses (first negative $-2V_0$ amplitude for S_1) for data electrodes of which associated pixels (GEL at the intersection of S_1 and I_2) should not produce light (Fig. 7, at $S_1 - I_2$ the related interval is at $-3V_0$, which the light is off)

the data pulses (first negative amplitude in light emission and non-light emission section) occurring in-between the select pulses (The two pulses are the $-2V_0$ of the

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signals S_1 and S_2 , in between is the positive amplitude of $2V_0$ in S_1) for data electrodes of which associated pixels (GEL at the intersection of S_1 and I_1) should produce light (Fig. 7, at $S_1 - I_2$ the related interval is at $+3V_0$, which the light is on).

As to claim 7, Kuribayashi teaches a display apparatus (EL, col. 6, lines 27-30) comprising a driver circuit (signal electrode driver, Fig. 11A).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuribayashi (U.S. Patent 6,016,037) in view of Shirasawa (U.S. Patent 6,249,279).

As to claim 2, Kuribayashi teaches that the data driver comprises:

Means (data converter, Fig. 11A) for directing either the output pulses which occur during the select pulses (first negative $-2V_0$ amplitude for S_1), or the output pulses which occur in-between the select pulses (first positive $+2V_0$ amplitude for S_1) to

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the data electrodes (I_2). Kuribayashi does not teach an energy recovery circuit.

Shirasawa teaches that the driver circuit further comprises:

an energy recovery circuit (1A, Fig. 1) for supplying output pulses (PZ11) with sine-wave shaped edges (see fig. 2E) and

a repetition frequency (P12, Fig. 2A) which is twice the predetermined repetition

frequency (PZ11), ($f(\text{Hz}) = \frac{1}{T(s)}$, Fig. 2A has a shorter time period, which has a higher

frequency). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the energy recovery circuit of Shirasawa to the data driver of Kuribayashi because the energy recovery circuit of Shirasawa's data line drive device for the matrix display panel can be formed in a simple circuit configuration while the charge on the data lines can be efficiently recovered and reused. Saving in power can be achieved (col. 11, lines 9-12).

9. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuribayashi (U.S. Patent 6,016,037) in view of Shirasawa (U.S. Patent 6,249,279) as applied to claim 2 and further in view of Kishita (U.S. Patent 6,175,193).

As to claim 3, Kuribayashi teaches the output pulses to the data electrodes (First positive amplitude in light emission of I_2 , Fig. 6) during the select pulses (first negative

$-2V_0$ amplitude for S_1) if the associated pixels (GEL at the intersection of S_1 and I_2) should not produce light (Fig. 7, at $S_1 - I_2$ the related interval is at $-3V_0$, which the light is off),

or to supply the output pulses to the data electrodes (first negative amplitude in light emission and non-light emission section) in-between the select pulses (The two pulses are the $-2V_0$ of the signals S_1 and S_2 , in between is the positive amplitude of $2V_0$ in S_1) if the associated pixels should produce light (Fig. 7, at $S_1 - I_2$ the related interval is at $+3V_0$, which the light is on). Kuribayashi does not teach a push-pull.

Kishita teaches, the means (2) for directing comprises push-pull output stages (22a, 22b, and 22c) for receiving the output pulses across series arranged first and second electronic switches (21a and 21b, col. 4, lines 3-9),

junctions of the respective first and the second electronic switches being coupled to respective ones of the data electrodes (Fig. 1, the node between 21c and 21b is connected to 201 and 301)

the driver circuit further comprising a controller (20) for controlling the push-pull output stages to supply the output pulses to the data electrodes (col. 4, lines 6-9). Therefore it would have been obvious to one skill in the art at the time the invention was made to have added the push-pull circuit of Kishita to driving circuit of Kuribayashi as modified by Shirasawa to have the push-pull driving circuit supplies the scanning

voltages selectively to the scanning electrodes according to signals from the controller 20. Parasitic diodes 21c, 21d, 22c, 22d, 23c, 23d . . . are formed in respective FETs as shown in FIG. 1, and they set the scanning voltage to a desired base voltage (col. 4, lines 7-12).

As to claim 4, Kishita teaches at least a subset of the push pull output stages (OUT1, OUT2, Fig. 3) of the data driver (3) is integrated in an integrated circuit (push-pull circuit, 31a, 31b, and 317), all the series arranged first and second electronic switches (31a, 31b) being coupled between terminals of the integrated circuit (317).

10. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuribayashi (U.S. Patent 6,016,037) in view of Shirasawa (U.S. Patent 6,249,279) as applied to claim 2 and further in view of Lee (Pub. No. U.S. 2003/0025459).

As to claim 5, note the discussion of Kuribayashi and Shirasawa in claim 2, Kuribayashi and Shirasawa do not teach select pulses having sine-wave. Lee teaches the driver circuit (300) comprises a further energy recovery circuit (320, fig. 6) for generating the select pulses (V_y) of the select signal (Y), with substantially sine-wave shaped edges (Intervals M1 and M3, Fig. 5).

As to claim 6, Lee teaches a resonance inductor (L1, Fig. 19) of the first mentioned energy recovery circuit (Fig. 19) and a resonance inductor (L2) of the further energy recovery circuit are magnetically coupled (The two inductors are parallel to each other, which causes a magnetic coupling between them).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fujioka (U.S. Patent 5,006,838) teaches a thin film EL display panel drive circuit.
Yamamoto (U.S. Patent 5,206,631) teaches a method and apparatus for driving a capacitive flat matrix display panel.

Inquiries

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegeman Karimi whose telephone number is (571) 270-1712. The examiner can normally be reached on Monday-Thursday 8:00am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Pegeman Karimi
4/27/2007


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SUPERVISORY PATENT EXAMINER